

suffusion over all the interior of the wing, leaving the borders pale; some black dots on costa before apex: hind wings with transverse deep black bands, basal and medial, the latter not reaching the costa, and accompanied by a grey band on its outer side, which broadens towards the anal angle, where there is a deep black patch. Underside bright chestnut-pink; a black medial line on hind wings, and with a pretty marbled appearance on both wings formed by black and white marks.

Expanse of wings $1\frac{2}{10}$ inch.

Cherra Punji. One example.

Rhodoneura hebra, sp. n.

♂. Chocolate-brown, striated with a regular network of very fine brown lines, many of the interspaces thereby formed being filled up with white, so as almost to form antemedial, medial, and postmedial transverse bands, which are better defined on the underside, where the ground-colour of the wings is more ochreous, and the spaces between the bands pink, with white suffusion also on the apical portions.

Expanse of wings $1\frac{1}{10}$ inch.

Cherra Punji. One example.

IV.—*Notes on Crustacea*.

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[Plate II.]

Two new Pedunculate Cirripedes.

Dichelaspis Hoeki, sp. n. (Pl. II. figs. A-D.)

General appearance.—Capitulum compressed, the breadth nearly three quarters of the length; the valves opaque, approaching one another closely at certain points, but nowhere coming in contact; the external membrane translucent, closely speckled almost all over with little clear spots, producing an appearance similar to that of an empty test of a *Globigerina*. The membrane is also traversed by strongly marked lines, some smooth, others wrinkled and denticulate, to a certain extent, though roughly, following the contours of the valves and presumably representing successive stages of the animal's growth. The peduncle is shorter than the capitulum, sometimes very much so.

Scuta.—The ocludent segment long, narrow, slightly

curved, acute at the base, the rounded apex closely approaching the excavated margin of the tergum; the basal segment shorter than the ocludent, but very much wider, triangular, the longest side slightly convex, lying very near to the inner margin of the ocludent segment; the lower side overlapping the basal part of the carina; the inner side slightly convex at the centre. The junction of the two segments is not solidly calcified.

Terga.—The upper part projecting with an obtuse or acute apex towards the ocludent margin of the capitulum, the valve widening downwards, so that the outer margin is deeply excavate, while the inner or carinal margin is nearly straight.

Carina.—Strongly bowed, overlapping the terga for more than half their length; the basal part at right angles to the remainder, and externally concave, so that it is not possible to see the two parts of the valve dorsally in one view; the distal border of the base is not emarginate.

Mandibles.—There are five teeth, that at the extremity of the convex margin the largest and remote from the others, the furthest from it of the remaining four being comparatively broad and denticulate.

First Maxilla.—The notch which follows the principal spines is shallow.

Cirri.—The first and shortest pair are not very remote from the second; the rami have six or seven joints of no great length, carrying numerous spines; the rami of the other pairs have from eight to ten joints apiece, the sixth pair having the smaller number. The setose spines are not numerous.

The one-jointed *caudal appendages* are short and narrow, tipped with a group of seta-like spines of various lengths, and carrying one or two of no great size below the apex. The penis has a group of spines or setae on the narrow blunt apex, and some setules are scattered over the surface, which in the two specimens dissected was greatly widened at the middle.

Size.—The specimen represented in fig. B is a little over three twentieths of an inch, the peduncle being rather more than one twentieth and the capitulum rather more than two twentieths, the parts to some extent overlapping one another.

The species is named in compliment to Dr. P. P. C. Hoek. The specimens were sent me by my obliging correspondent, W. R. Forrest, Esq., from Antigua, where he found them on the mouth-organs of a Palinurid.

Dichelaspis antiquæ, sp. n. (Pl. II. figs. E-G.)

At the first glance I supposed this species to be merely a variety of the preceding; but upon dissecting a specimen and

examining further I found it impossible to retain that view. The differences are, in fact, rather numerous. The valves occupy a larger proportion of the capitulum and are much less opaque. In consequence of the latter characteristic they allow the "primordial valves" at the umbones of the terga and scuta to be seen much more clearly than they are in the other species. Moreover, the membrane is devoid of the foraminate appearance which it has in *Dichelaspis Hoeki*, and the peduncle is relatively shorter.

Terga.—These, instead of widening downwards, are contracted below.

Carina.—The distal margin of the base is distinctly though not deeply emarginate.

Cirri.—These are all more elongate than in *Dichelaspis Hoeki*, although taken from a smaller specimen. The rami of the first pair have from seven to eight joints, those of the other pairs from twelve to fourteen, the joints themselves being more slender, more elongate, and with more numerous spines than in the preceding species.

The caudal appendages are also longer and more slender, with longer spines at the apex, and none on the margin below it. The penis is not peculiarly widened.

Size.—The specimen represented in fig. E is less than three twentieths of an inch, and the capitulum is not quite two twentieths.

Both in this and in the specimens of *Dichelaspis Hoeki* (figs. B, C, D) there were large numbers of narrowly oval eggs. The young specimen of *Dichelaspis antiquæ* (fig. G) has a capitulum measuring one twentieth of an inch in length. In this specimen the sieve-like appearance of the primordial valves is clearly seen. Fig. G (*sc.*) shows one of the scuta of this specimen, from which it can be seen that up to rather a late stage the two segments remain solidly united.

Mr. Forrest informs me that he took the Cirripedes above described from the maxillipeds of three different Palinurids, one of which weighed twelve pounds, and had a carapace $10\frac{1}{2}$ inches long, a pleon of 11 inches, and antennæ considerably truncated, but still measuring 24 inches in length. Whether the two species of *Dichelaspis* came from different species, or even different specimens, of Palinuridæ, I am not in a position to decide. The *Trichelaspis Forresti*, described in this Magazine in May last as taken on a crayfish, is a guest of *Panulirus argus* (Latreille), which, according to the modern use of the terms, may be more properly called a crawfish.

The synoptical table of the species of *Dichelaspis* given by Dr. Hoek in his Report of the Cirripedia of the 'Challenger' may now be enlarged as follows:—

- I. Carina terminating in a disk.
1. Basal segment of the scutum twice as wide as the occludent segment. Habitat: eastern waters, on a crab *D. Warwickii* (Gray).
 2. Basal segment of scutum three times as wide as the occludent segment; tergum widening downwards. Habitat: West Indies, on a Palinurid *D. Hoeki*, sp. n.
 3. Basal segment of scutum three times as wide as the occludent; tergum narrowing downwards. Habitat: West Indies, on a Palinurid *D. antiquæ*, sp. n.
 4. Basal segment narrower than the occludent segment. Habitat: probably oriental, attached to the skin of a sea-snake *D. Grayi*, Darwin.
 5. Basal segment much narrower than the occludent segment and about half as long. Habitat: Indian Ocean, on a sea-snake *D. pellucida*, Darwin.
- II. Carina terminating in a fork.
- A. Basal segment of the scutum directed towards the centre of the capitulum.
 6. Habitat: Moreton Bay, Australia *D. neptuni* (Macdonald).
 - B. Basal segment of the scutum running parallel to the lower margin of the capitulum.
 - a. Capitulum almost as long as broad.
 7. Tergum triangular. Habitat: Japan *D. Aymonini*, Lessona.
 8. Tergum divided by a deep notch. Habitat: Mediterranean *D. Darwinii*, De Filippi.
 - b. Capitulum more than once and a half as long as it is broad.
 9. Habitat: Madeira, attached to a Brachyurous crab *D. Lowei*, Darwin.
- III. Carina terminating in a cup.
10. Scutum divided into two distinct segments. Habitat unknown, apparently attached to a horny coralline *D. orthogonia*, Darwin.
 11. Scutum with a notch only, and indistinctly divided. Habitat: near the Azores, on the spine of an *Echinus*, dredged from 1000 fathoms *D. sessilis*, Hoek.

The ink of the last sentence was scarcely dry or not dry when the post brought me the highly important 'Studien über Cirripeden,' just published by Dr. Carl W. S. Aurivillius. The distinguished author gives descriptions and

figures of nine species of *Dichelaspis*, eight of which are distinct from those above-mentioned. The first in his list is *Dichelaspis Warwickii* (Gray), of which he records the occurrence in the Java Sea at Batavia, on the underside of the cephalothorax of *Limulus molucconus*. Incidentally he notes that the Mediterranean *Dichelaspis Darwinii* is found on *Palinurus vulgaris*. Of his own species, *Dichelaspis cor*, 1892, *Dichelaspis angulata*, *Dichelaspis aperta*, *Dichelaspis cuneata* have only three valves, the terga being absent, while his *Dichelaspis bullata*, 1892, has only two valves, for here the terga and carina are wanting, as well as the basal segments of the scuta. Dr. Aurivillius gives reasons for not establishing new genera to suit the differences of structure exhibited by these species, and for retaining the name *Dichelaspis*, although its meaning is obviously inapplicable to a species in which the scutum is not divided. It will, however, be very difficult to uphold the name in cases where its meaning does not apply, in face of the fact that Darwin displaced older names on the very ground that they were suggestive of error. The three other new species are all from the Java Sea, and from the branchiæ of a *Palinurus*. The first, *Dichelaspis alata*, is near to *Dichelaspis Warwickii*, the second, *Dichelaspis sinuata*, to *Dichelaspis Lowei*, the carina terminating in a large fork, in which respect the third, *Dichelaspis trigona*, agrees with it.

English Terrestrial Isopods.

In an interesting paper on "The Irish Woodlice" Dr. Scharff has recently recalled attention to the terrestrial Isopoda of the adjacent island as well as to those of Ireland itself. Of seventeen British species he remarks that "twelve are common to Great Britain and Ireland, two are found in Great Britain and not in Ireland, and three in Ireland and not in Great Britain, so that the fauna of Ireland, though poorer in many respects than that of Great Britain, is richer in woodlice by one species." In justice to England, however, it must be noted that Dr. Scharff has overlooked its recorded possession of *Metoponorthus cingendus* (Kinahan). This species has been found by more than one observer in South Devon; and by taking it into account the numbers of the land Isopods on the opposite sides of St. George's Channel are exactly balanced. But England is, in fact, richer in this group than its past record shows. Several years ago I obtained at Ventnor, in the Isle of Wight, a specimen of *Porcellio dilatatus*, Brandt, which I have now had the opportunity of

comparing with French examples kindly sent me by M. Adrien Dollfus. The Ventnor specimen, though a small one, agrees with these in relative breadth and in the characteristic feature of the rounded apex of the telson. It differs, however, in colour, not being dark grey on the back, but rather of a dull yellow, faintly marked longitudinally with two narrow adjacent darkish stripes down the centre. The differences between *Porcellio dilatatus* and the common *Porcellio scaber* are sufficiently clear, yet that they are not overwhelmingly conspicuous may be inferred from the circumstance that the late Professor Milne-Edwards regarded the former as a synonym of the latter. To the well-known *Armadillidium vulgare* (Latreille) the English fauna may now add two other well-marked species of the same genus. During last September at Shirehampton, on the Avon, I found the large *Armadillidium depressum*, Budde-Lund, which is easily distinguished from *A. vulgare* by the broad projection from the epistome above the frontal line. M. Dollfus has obligingly sent me specimens for comparison from Rome, and also one from Clifton, near Bristol, bearing the name of Pocock as the donor. Also during last September in Leigh Woods, at Clifton, I found *Armadillidium nasatum*, Budde-Lund, which has a narrower but otherwise more pronounced projection than that observed in *depressum*. In his 'Catalogue of the Land Isopods of Spain' Dollfus says of this *nasatum* that it is "espèce remarquable par la forte saillie pré-frontale de l'écusson du prosépistome." Many years ago I met with this species at Tunbridge Wells, and supposed it to be a novelty; but from want of the requisite literature on the subject and pressure of other engagements was forced to lay it aside undescribed. It was again recalled to my remembrance by specimens which my nephew, Mr. Mello Saunders, this year collected for me in France.

As the account at present stands there are eighteen species of land Isopods in England to fifteen in Ireland, the only one of the Irish group that has not been found in England being *Trichoniscus vividus*, Koch. It is not unlikely that fresh species will be found in each of the competing districts when more attention is directed to these crustaceans. At present there are many people to whom the information that there is more than one kind of woodlouse comes as a surprise.

Terrestrial Isopods of various genera may be assumed to have tastes much in common, for the small limestone quarry at Shirehampton which yielded *Armadillidium depressum* contained also *Trichoniscus roseus*, *Porcellio scaber*, and *Oniscus asellus*, the specimens of *Porcellio* and *Oniscus* being rather exceptionally fine. Such associations are not uncon-

mon, for the late Professor Kinahan is said to have found a dozen species of Oniscidæ in a garden not sixty yards square.

Some English Marine Isopods.

The paper on the Idoteidæ of the coasts of France, recently published by Mons. Adrien Dollfus ('Feuille des Jeunes Naturalistes,' Nov. 1, 1894), gives a readjustment of the nomenclature in many respects applicable to the species of that family which are found on the English coast. The species assigned to *Idotea* by Bate and Westwood are distributed by Dollfus among three genera—*Stenosoma*, Leach, in which the pleon has all the segments coalesced; *Idotea*, Fabricius, in which the first two segments of the pleon are dorsally distinct and the third is laterally indicated; *Zenobia*, Risso, in which the first three segments of the pleon are dorsally distinct and the fourth is laterally indicated.

Of these three generic names *Zenobia* is undoubtedly pre-occupied, and I therefore propose a change of it into *Zenobiana*; the species called *Idotea parallela* by Bate and Westwood will then become *Zenobiana prismatica* (Risso). Mr. E. J. Miers, in his 'Revision of the Idoteidæ,' has regarded *Idotea acuminata* (Leach) as a head-species, of which Risso's *appendiculata*, Rathke's *capito*, and some others are synonyms or varieties. But, as Dollfus points out, there are considerable differences separating several of these forms, so that *Idotea acuminata* rightfully resumes the name *Stenosoma acuminatum*, long ago given it by Leach, while *Idotea appendiculata* of Bate and Westwood should rather be called *Stenosoma lancifer*, a manuscript name given it by Leach and published by Miers. The *Stenosoma appendiculatum* (Risso) and *Stenosoma capito* (Rathke) are not at present known on the English coast.

Eurydice spinigera, Hansen, may be added to the British fauna, as I have taken it in the harbour of Ilfracombe. In general appearance it is very like the common *Eurydice pulchra*, but attains a larger size and is deeper in colouring, the greater depth of hue being noticeable even in specimens which have been long in spirit. Of distinguishing characters easy to observe may be mentioned the shape of the side-plates, which all have the hind angle acutely produced, and the armature of the last segment of the pleon, which has a distal emargination and a couple of spines at each angle, the inner spine being much larger than the outer.